

SEQUENCE LISTING

<110> Rong, Sing
Cai, Jenny Hon

<120> METHODS AND COMPOSITIONS FOR DIAGNOSING AND TREATING COMPANION
ANIMAL CANCER

<130> 15526 (PC23188A)

<140> 60/422,342
<141> 2002-10-30

<160> 43

<170> PatentIn version 3.2

<210> 1
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 1
accatttcta cagttcmaga aaagca 26

<210> 2
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 2
tcctgaaatc graagtatgt ttgggaatac atgta 35

<210> 3
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 3
acagaaacaa aaatyctgtc atttt 25

<210> 4
<211> 35
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer

 <400> 4
 tacatctatt cccaaacata cttycgattt cagga 35

 <210> 5
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 5
 gcagtcagac tctgacagga tcatg 25

 <210> 6
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 6
 ctttttcttt ccaggtcagt ta 22

 <210> 7
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 7
 agagtacgcg ggggcagcag tgac 24

 <210> 8
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 8
 ccctcgagtg tagccgatta aaaaggcccc gaaaaaac 38

 <210> 9
 <211> 50
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

 <400> 9
 gcagtggatc caacgcagag tacgcgggag cacggaccgg cggggggcag 50

 <210> 10
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 10
 ccaagagtag ataataaaga cagc 24

 <210> 11
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 11
 caacaaaata tggatcccat ggtgagagaa agaggt 36

 <210> 12
 <211> 40
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 12
 ttccaggctc gagagccaac taaaaaggcc ccgaaaaaac 40

 <210> 13
 <211> 40
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 13
 ttctcgagca gttagccaac taaaaaggcc ccgaaaaaac 40

 <210> 14
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

 <400> 14
 attccttaca tggtaagcga ccgaggttct cagag 35

 <210> 15
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 15
 gttttttctc gagtgcagcg tatgtagccg attaaa 36

 <210> 16
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 16
 gttttttctc gagtgcagcg tatttagccg 30

 <210> 17
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 17
 tacatggtaa gagaaagagg tcctcagaga gtagca 36

 <210> 18
 <211> 37
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 18
 cctcgagtgt agccgattaa aaaggcccg aaaaaac 37

 <210> 19
 <211> 37
 <212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 19

cctcgagttt agccgattaa aaaggccccg aaaaaac

37

<210> 20

<211> 1264

<212> DNA

<213> Canine

<220>

<221> CDS

<222> (163)..(1008)

<400> 20

gctatactcg ggcgcggtac cataacttcg tatagcatatc attatacgaa gttatcggag 60

gaattggctc gaggaattgc ccttctaata cgactcacta tagggcaagc agtggttaaca 120

acgcagagta cgcgggagca cggaccggcg gggggcagcg ag atg cag gcc ccg 174
Met Gln Ala Pro
1

ggg ggc ccc agc ctc ggg ctg acg tgc gtg ctg atc ctc atc ttc act 222
Gly Gly Pro Ser Leu Gly Leu Thr Cys Val Leu Ile Leu Ile Phe Thr
5 10 15 20

gtg ctg ctc cag tcc ctc tgc gtg gcc gtc acc tac atg tac ttc acc 270
Val Leu Leu Gln Ser Leu Cys Val Ala Val Thr Tyr Met Tyr Phe Thr
25 30 35

agg gag ctg aag cag atg cag gac aag tac tcc caa agt ggc atc gct 318
Arg Glu Leu Lys Gln Met Gln Asp Lys Tyr Ser Gln Ser Gly Ile Ala
40 45 50

tgt ttc tta aag gaa gat gat atc ccc tgg gac ccc agt gat gaa gag 366
Cys Phe Leu Lys Glu Asp Asp Ile Pro Trp Asp Pro Ser Asp Glu Glu
55 60 65

agt atg aac aac ccc tgc tgg caa gtg aag tgg caa ctc cgc cag ttt 414
Ser Met Asn Asn Pro Cys Trp Gln Val Lys Trp Gln Leu Arg Gln Phe
70 75 80

gtt aga aag atg att ttg aaa acc tat gag gaa acc att cct aca gct 462
Val Arg Lys Met Ile Leu Lys Thr Tyr Glu Glu Thr Ile Pro Thr Ala
85 90 95 100

cca gaa aag cag cta aat att cct tac gta gta agc gac cga ggt tct 510
Pro Glu Lys Gln Leu Asn Ile Pro Tyr Val Val Ser Asp Arg Gly Ser
105 110 115

cag aga gta gct gct cac ata act gga acc agt cgg aga agc atg ttt 558
Gln Arg Val Ala Ala His Ile Thr Gly Thr Ser Arg Arg Ser Met Phe
120 125 130

cca att cca agc tcc aag aat gat aaa gct ttg ggc cac aaa ata aac Pro Ile Pro Ser Ser Lys Asn Asp Lys Ala Leu Gly His Lys Ile Asn 135 140 145	606
tcc tgg gat tcc aca aga aaa gga cat tca ttc ttg aat aat ttg cac Ser Trp Asp Ser Thr Arg Lys Gly His Ser Phe Leu Asn Asn Leu His 150 155 160	654
ttg agg aac gga gag ctg gtt atc cat caa agg ggg ttt tat tac atc Leu Arg Asn Gly Glu Leu Val Ile His Gln Arg Gly Phe Tyr Tyr Ile 165 170 175 180	702
tat tcc caa aca tac ttt cga ttt cag gaa cct gag gaa att cca aca Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Pro Glu Glu Ile Pro Thr 185 190 195	750
gga cag aac aga aag aga aac aaa caa atg gtc caa tat att tac aaa Gly Gln Asn Arg Lys Arg Asn Lys Gln Met Val Gln Tyr Ile Tyr Lys 200 205 210	798
cac acg agt tat ccg gac cct ata ctg ctg atg aaa agt gct aga aat His Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn 215 220 225	846
agt tgt tgg tct aaa gat tct gaa tat gga ctc tat tcc atc tat caa Ser Cys Trp Ser Lys Asp Ser Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln 230 235 240	894
ggg gga ata ttt gag ctt aag gaa aac gat aga att ttt gtc tct gta Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val 245 250 255 260	942
tct aac gag caa ttg att gac atg gac caa gaa gcc agt ttt ttc ggg Ser Asn Glu Gln Leu Ile Asp Met Asp Gln Glu Ala Ser Phe Phe Gly 265 270 275	990
gcc ttt tta atc ggc taa atacgctgca aagaaaaaaa aactgtattc Ala Phe Leu Ile Gly 280	1038
tttattcaca gcaaagcaag gacatctaag caaagtcacg tcaaccaaaa gagtaacacg	1098
cctttctcaa acatctctga aaatgaccaaggtcattctca gaaaatgaaa ttgccgaaga	1158
cctttccagg cactaccaag agatcagttt gctagcagaa acctagaaga ttctgtaagc	1218
agctgtcttt attatctact cttggaaaga ccagaagca agatta	1264

<210> 21
 <211> 281
 <212> PRT
 <213> Canine

<400> 21

Met Gln Ala Pro Gly Gly Pro Ser Leu Gly Leu Thr Cys Val Leu Ile
 1 5 10 15
 Leu Ile Phe Thr Val Leu Leu Gln Ser Leu Cys Val Ala Val Thr Tyr
 20 25 30
 Met Tyr Phe Thr Arg Glu Leu Lys Gln Met Gln Asp Lys Tyr Ser Gln
 35 40 45
 Ser Gly Ile Ala Cys Phe Leu Lys Glu Asp Asp Ile Pro Trp Asp Pro
 50 55 60
 Ser Asp Glu Glu Ser Met Asn Asn Pro Cys Trp Gln Val Lys Trp Gln
 65 70 75 80
 Leu Arg Gln Phe Val Arg Lys Met Ile Leu Lys Thr Tyr Glu Glu Thr
 85 90 95
 Ile Pro Thr Ala Pro Glu Lys Gln Leu Asn Ile Pro Tyr Val Val Ser
 100 105 110
 Asp Arg Gly Ser Gln Arg Val Ala Ala His Ile Thr Gly Thr Ser Arg
 115 120 125
 Arg Ser Met Phe Pro Ile Pro Ser Ser Lys Asn Asp Lys Ala Leu Gly
 130 135 140
 His Lys Ile Asn Ser Trp Asp Ser Thr Arg Lys Gly His Ser Phe Leu
 145 150 155 160
 Asn Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Gln Arg Gly
 165 170 175
 Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Pro Glu
 180 185 190
 Glu Ile Pro Thr Gly Gln Asn Arg Lys Arg Asn Lys Gln Met Val Gln
 195 200 205
 Tyr Ile Tyr Lys His Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys
 210 215 220
 Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ser Glu Tyr Gly Leu Tyr
 225 230 235 240

Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile
 245 250 255

Phe Val Ser Val Ser Asn Glu Gln Leu Ile Asp Met Asp Gln Glu Ala
 260 265 270

Ser Phe Phe Gly Ala Phe Leu Ile Gly
 275 280

<210> 22
 <211> 1163
 <212> DNA
 <213> Feline

<220>
 <221> CDS
 <222> (104)..(949)

<400> 22
 gaattgccct tctaatacga ctccctatag ggcaagcagt ggtaacaacg cagagtacgc 60

gggggcagca gtgactgtcg gagaggacag gaccgtggtc gag atg cag gcc ccg 115
 Met Gln Ala Pro
 1

gcg ggc ccc agt ccc ggg cag acc tgc gtg ctg atc ctg atc ttc act 163
 Ala Gly Pro Ser Pro Gly Gln Thr Cys Val Leu Ile Leu Ile Phe Thr
 5 10 15 20

gtg ctc ctg cag tcc ctc tgc gtg gcc gtg act tac atg tac ttc acc 211
 Val Leu Leu Gln Ser Leu Cys Val Ala Val Thr Tyr Met Tyr Phe Thr
 25 30 35

agt gaa ctg agg cag atg cag gac aaa tac tcc caa agt ggc att gct 259
 Ser Glu Leu Arg Gln Met Gln Asp Lys Tyr Ser Gln Ser Gly Ile Ala
 40 45 50

tgt ttc tta aag gaa gac gat atc cct tgg gac ccc aat gat gaa gag 307
 Cys Phe Leu Lys Glu Asp Asp Ile Pro Trp Asp Pro Asn Asp Glu Glu
 55 60 65

agt atg aac acc ccg tgc tgg caa gtg aaa tgg cag ctc cgt cag ttt 355
 Ser Met Asn Thr Pro Cys Trp Gln Val Lys Trp Gln Leu Arg Gln Phe
 70 75 80

gtt aga aag att ttg aga acc tat gag gaa acc att cct aca gtt cca 403
 Val Arg Lys Ile Leu Arg Thr Tyr Glu Glu Thr Ile Pro Thr Val Pro
 85 90 95 100

gaa aag cag cta aat att cct tac cta gta aga gaa aga ggt cct cag 451
 Glu Lys Gln Leu Asn Ile Pro Tyr Leu Val Arg Glu Arg Gly Pro Gln
 105 110 115

aga gta gca gct cac ata act gga acc agt cgg aga aga agc aca ttc 499

Arg Val Ala Ala His Ile Thr Gly Thr Ser Arg Arg Arg Ser Thr Phe	
120 125 130	
cca gtt cca agc tcc aag aat gaa aaa gct ttg ggt cag aaa ata aac	547
Pro Val Pro Ser Ser Lys Asn Glu Lys Ala Leu Gly Gln Lys Ile Asn	
135 140 145	
tcc tgg gag tca tca aga aaa gga cat tca ttc ttg aat aat ttg cac	595
Ser Trp Glu Ser Ser Arg Lys Gly His Ser Phe Leu Asn Asn Leu His	
150 155 160	
ttg agg aat ggt gag ctg gtt att cat cag agg ggg ttt tat tac atc	643
Leu Arg Asn Gly Glu Leu Val Ile His Gln Arg Gly Phe Tyr Tyr Ile	
165 170 175 180	
tat tcc caa aca tac ttt cga ttt cag gaa cct gag gaa att cca aca	691
Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Pro Glu Glu Ile Pro Thr	
185 190 195	
gga cag aac aga aag aga aac aaa caa atg gtc caa tat att tac aaa	739
Gly Gln Asn Arg Lys Arg Asn Lys Gln Met Val Gln Tyr Ile Tyr Lys	
200 205 210	
cac acg agt tat ccg gac cct ata ctg ctg atg aaa agt gct aga aat	787
His Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser Ala Arg Asn	
215 220 225	
agt tgt tgg tct aaa gat tct gaa tat gga ctc tat tcc atc tat caa	835
Ser Cys Trp Ser Lys Asp Ser Glu Tyr Gly Leu Tyr Ser Ile Tyr Gln	
230 235 240	
ggt ggg ata ttt gag ctt aag gaa aac gat aga att ttt gtc tct gta	883
Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile Phe Val Ser Val	
245 250 255 260	
tct aac gag caa ttg att gac atg gac caa gaa gcc agt ttt ttc ggg	931
Ser Asn Glu Gln Leu Ile Asp Met Asp Gln Glu Ala Ser Phe Phe Gly	
265 270 275	
gcc ttt tta atc ggc taa atacgctgca aagaaaaaaa aactgtattc	979
Ala Phe Leu Ile Gly	
280	
tttattcaca gcaaagcaag gacatctaag caaagtcacg tcaaccaaaa gagtaacacg	1039
cctttctcaa acatctctga aaatgaccaa gtcattctca gaaaatgaaa ttgccgaaga	1099
cctttccagg cactaccaga gatcagtttg ctacagaaaa cctagaagat tctgtaagca	1159
gctg	1163
<210> 23	
<211> 281	
<212> PRT	
<213> Feline	
<400> 23	

Met Gln Ala Pro Ala Gly Pro Ser Pro Gly Gln Thr Cys Val Leu Ile
1 5 10 15
Leu Ile Phe Thr Val Leu Leu Gln Ser Leu Cys Val Ala Val Thr Tyr
20 25 30
Met Tyr Phe Thr Ser Glu Leu Arg Gln Met Gln Asp Lys Tyr Ser Gln
35 40 45
Ser Gly Ile Ala Cys Phe Leu Lys Glu Asp Asp Ile Pro Trp Asp Pro
50 55 60
Asn Asp Glu Glu Ser Met Asn Thr Pro Cys Trp Gln Val Lys Trp Gln
65 70 75 80
Leu Arg Gln Phe Val Arg Lys Ile Leu Arg Thr Tyr Glu Glu Thr Ile
85 90 95
Pro Thr Val Pro Glu Lys Gln Leu Asn Ile Pro Tyr Leu Val Arg Glu
100 105 110
Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly Thr Ser Arg Arg
115 120 125
Arg Ser Thr Phe Pro Val Pro Ser Ser Lys Asn Glu Lys Ala Leu Gly
130 135 140
Gln Lys Ile Asn Ser Trp Glu Ser Ser Arg Lys Gly His Ser Phe Leu
145 150 155 160
Asn Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Gln Arg Gly
165 170 175
Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Pro Glu
180 185 190
Glu Ile Pro Thr Gly Gln Asn Arg Lys Arg Asn Lys Gln Met Val Gln
195 200 205
Tyr Ile Tyr Lys His Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys
210 215 220
Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ser Glu Tyr Gly Leu Tyr
225 230 235 240

Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg Ile
245 250 255

Phe Val Ser Val Ser Asn Glu Gln Leu Ile Asp Met Asp Gln Glu Ala
260 265 270

Ser Phe Phe Gly Ala Phe Leu Ile Gly
275 280

<210> 24
<211> 519
<212> DNA
<213> Canine

<400> 24
atggttaagcg accgaggttc tcagagagta gctgctcaca taactggaac cagtcggaga 60
agcatgtttc caattccaag ctccaagaat gataaagctt tgggccacaa aataaactcc 120
tggtgattcca caagaaaagg acattcattc ttgaataatt tgcacttgag gaacggagag 180
ctggttatcc atcaaagggg gttttattac atctactccc aaacatactt tcgatttcag 240
gaacctgagg aaattccaac aggacagaac agaaagagaa acaaacaat ggtccaatat 300
atttacaac acacgagtta tccggaccct atactgctga tgaaaagtgc tagaaatagt 360
tgttggtcta aagattctga atatggactc tattccatct atcaaggtgg gatatttgag 420
cttaaggaaa acgatagaat ttttgtctct gtatctaacg agcaattgat tgacatggac 480
caagaagcca gttttttcgg ggccttttta atcggttaa 519

<210> 25
<211> 172
<212> PRT
<213> Canine

<400> 25

Met Val Ser Asp Arg Gly Ser Gln Arg Val Ala Ala His Ile Thr Gly
1 5 10 15

Thr Ser Arg Arg Ser Met Phe Pro Ile Pro Ser Ser Lys Asn Asp Lys
20 25 30

Ala Leu Gly His Lys Ile Asn Ser Trp Asp Ser Thr Arg Lys Gly His
35 40 45

Ser Phe Leu Asn Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His
50 55 60

Gln Arg Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln
65 70 75 80

Glu Pro Glu Glu Ile Pro Thr Gly Gln Asn Arg Lys Arg Asn Lys Gln
85 90 95

Met Val Gln Tyr Ile Tyr Lys His Thr Ser Tyr Pro Asp Pro Ile Leu
100 105 110

Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ser Glu Tyr
115 120 125

Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn
130 135 140

Asp Arg Ile Phe Val Ser Val Ser Asn Glu Gln Leu Ile Asp Met Asp
145 150 155 160

Gln Glu Ala Ser Phe Phe Gly Ala Phe Leu Ile Gly
165 170

<210> 26'
<211> 624
<212> DNA
<213> Canine

<400> 26
atggtaagcg accgaggttc tcagagagta gctgctcaca taactggaac cagtcggaga 60
agcatgtttc caattccaag ctccaagaat gataaagctt tgggccacaa aataaactcc 120
tgggattcca caagaaaagg acattcattc ttgaataatt tgcacttgag gaacggagag 180
ctggttatcc atcaaagggg gttttattac atctactccc aaacatactt tcgatttcag 240
gaacctgagg aaattccaac aggacagaac agaaagagaa acaaacaaat ggtccaatat 300
atttacaac acacgagtta tccggaccct atactgctga tgaaaagtgc tagaaatagt 360
tgttggtcta aagattctga atatggactc tattccatct atcaagggtg gatatttgag 420
cttaaggaaa acgatagaat ttttgtctct gtatctaacg agcaattgat tgacatggac 480
caagaagcca gttttttcgg ggccttttta atcggctaca tacgctgcac tcgagaaaaa 540
acaagggcaa ttcgggagct cggtaagcct atccctaacc ctctcctcgg tctcgattct 600
agccatcatc accatcacca gtga 624

<210> 27
 <211> 207
 <212> PRT
 <213> Canine

<400> 27

Met Val Ser Asp Arg Gly Ser Gln Arg Val Ala Ala His Ile Thr Gly
 1 5 10 15

Thr Ser Arg Arg Ser Met Phe Pro Ile Pro Ser Ser Lys Asn Asp Lys
 20 25 30

Ala Leu Gly His Lys Ile Asn Ser Trp Asp Ser Thr Arg Lys Gly His
 35 40 45

Ser Phe Leu Asn Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His
 50 55 60

Gln Arg Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln
 65 70 75 80

Glu Pro Glu Glu Ile Pro Thr Gly Gln Asn Arg Lys Arg Asn Lys Gln
 85 90 95

Met Val Gln Tyr Ile Tyr Lys His Thr Ser Tyr Pro Asp Pro Ile Leu
 100 105 110

Leu Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ser Glu Tyr
 115 120 125

Gly Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn
 130 135 140

Asp Arg Ile Phe Val Ser Val Ser Asn Glu Gln Leu Ile Asp Met Asp
 145 150 155 160

Gln Glu Ala Ser Phe Phe Gly Ala Phe Leu Ile Gly Tyr Ile Arg Cys
 165 170 175

Thr Arg Glu Lys Thr Arg Ala Ile Arg Glu Leu Gly Lys Pro Ile Pro
 180 185 190

Asn Pro Leu Leu Gly Leu Asp Ser Ser His His His His His Gln
 195 200 205

<210> 28
 <211> 516
 <212> DNA
 <213> Feline

<400> 28
 atggtaagag aaagaggtcc tcagagagta gcagctcaca taactggaac cagtcggaga 60
 agaagcacat tcccagttcc aagctccaag aatgaaaaag ctttgggtca gaaaataaac 120
 tcctgggagt catcaagaaa aggacattca ttcttgaata atttgactt gaggaatggg 180
 gagctgggta ttcacagag ggggttttat tacatctatt cccaaacata ctttagattt 240
 caggaacctg aggagacaga acagaacaga aagagaaaca aacaaatggg acaatatatc 300
 taaaaataca caagttatcc tgacccgata ctgctaataa aaagtgctag aaatagttgt 360
 tgggtctaagg attcagaata tggactctat tccatctatc aagggtgggat atttgagctg 420
 aaggaaaatg acagaatttt tgtctctgta agtaatgagc aattgattga catggaccaa 480
 gaagccagtt ttttcggggc ctttttaatc ggctaa 516

<210> 29
 <211> 171
 <212> PRT
 <213> Feline

<400> 29

Met Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly
 1 5 10 15

Thr Ser Arg Arg Arg Ser Thr Phe Pro Val Pro Ser Ser Lys Asn Glu
 20 25 30

Lys Ala Leu Gly Gln Lys Ile Asn Ser Trp Glu Ser Ser Arg Lys Gly
 35 40 45

His Ser Phe Leu Asn Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile
 50 55 60

His Gln Arg Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe
 65 70 75 80

Gln Glu Pro Glu Glu Thr Glu Gln Asn Arg Lys Arg Asn Lys Gln Met
 85 90 95

Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu
 100 105 110

Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ser Glu Tyr Gly
 115 120 125

Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp
 130 135 140

Arg Ile Phe Val Ser Val Ser Asn Glu Gln Leu Ile Asp Met Asp Gln
 145 150 155 160

Glu Ala Ser Phe Phe Gly Ala Phe Leu Ile Gly
 165 170

<210> 30
 <211> 606
 <212> DNA
 <213> Feline

<400> 30
 atggtaagag aaagaggtcc tcagagagta gcagctcaca taactggaac cagtcggaga 60
 agaagcacat tcccagttcc aagctccaag aatgaaaaag ctttgggtca gaaaataaac 120
 tcctgggagt catcaagaaa aggacattca ttcttgaata atttgactt gaggaatggg 180
 gagctgggta ttcattcagag ggggttttat tacatctatt cccaaacata ctttagattt 240
 caggaacctg aggagacaga acagaacaga aagagaaaca aacaaatggg acaatatatc 300
 taaaaataca caagttatcc tgacccgata ctgctaataa aaagtgctag aaatagttgt 360
 tgggtctaagg attcagaata tggactctat tccatctatc aagggtgggatt atttgagctg 420
 aaggaaaatg acagaatttt tgtctctgta agtaatgagc aattgattga catggaccaa 480
 gaagccagtt ttttcggggc ctttttaatc ggctacactc gaggaagggc aattcggggag 540
 ctcggttaagc ctatccctaa ccctctctc ggtctcgatt ctagccatca tcaccatcac 600
 cattga 606

<210> 31
 <211> 201
 <212> PRT
 <213> Feline

<400> 31

Met Val Arg Glu Arg Gly Pro Gln Arg Val Ala Ala His Ile Thr Gly
 1 5 10 15

Thr Ser Arg Arg Arg Ser Thr Phe Pro Val Pro Ser Ser Lys Asn Glu
 20 25 30

Lys Ala Leu Gly Gln Lys Ile Asn Ser Trp Glu Ser Ser Arg Lys Gly
 35 40 45

His Ser Phe Leu Asn Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile
 50 55 60

His Gln Arg Gly Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe
 65 70 75 80

Gln Glu Pro Glu Glu Thr Glu Gln Asn Arg Lys Arg Asn Lys Gln Met
 85 90 95

Val Gln Tyr Ile Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu
 100 105 110

Met Lys Ser Ala Arg Asn Ser Cys Trp Ser Lys Asp Ser Glu Tyr Gly
 115 120 125

Leu Tyr Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp
 130 135 140

Arg Ile Phe Val Ser Val Ser Asn Glu Gln Leu Ile Asp Met Asp Gln
 145 150 155 160

Glu Ala Ser Phe Phe Gly Ala Phe Leu Ile Gly Tyr Thr Arg Gly Arg
 165 170 175

Ala Ile Arg Glu Leu Gly Lys Pro Ile Pro Asn Pro Leu Leu Gly Leu
 180 185 190

Asp Ser Ser His His His His His His
 195 200

<210> 32
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 32
 gccagatctg taagcgaccg aggttctcag

30

<210> 33

<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 33
gccagatctg taagagaaag aggtcctcag 30

<210> 34
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 34
aaaactgcag ttagccgatt aaaaaggccc cg 32

<210> 35
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 35
gcttggtacc gtaagcgacc gaggttctca g 31

<210> 36
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 36
gcttggtacc gtaagagaaa gaggtcctca g 31

<210> 37
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 37
ctcctcgagt tagccgatta aaaaggcccc 30

<210> 38
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 38
 gaattgccct tattccttcc atggtaagcg accgaggttc t 41

 <210> 39
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 39
 tgttttttct cgagtgcact gcagttagcc gattaataag g 41

 <210> 40
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 40
 cacagtcgag gctgatagct gcagtcaatg gtgatgggtga tg 42

 <210> 41
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 41
 ctcgaggaat tgccctttcc atggtaagag aaagaggtcc t 41

 <210> 42
 <211> 41
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Primer

 <400> 42
 ctcccgaatt gcccttcct gcagttagcc gattaataag g 41

<210> 43
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 43
cacagtcgag gctgatatgct gcagtcgaatg gtgatgggtga tgatg

45